

MARTIN MARIETTA ENERGY SYSTEMS, INC. OAK RIDGE NATIONAL LABORATORY UNUSUAL OCCURRENCE REPORT

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1. Report No. UOR-ORNL-90-035-ENGR-01
2. Report Date
Initial _____
Interim _____
Final September 4, 1990

3. Division or Project
Chilled Water Line Restoration Project

4. Facility, System, and/or Equipment
Storm Sewer System

5. Date of Unusual Occurrence
July 25, 1990

6. Time of Unusual Occurrence
Approximately 10:30 a.m.

7. Unusual Occurrence Subject
Discharge of unmonitored process waste water into White Oak Creek.

8. Apparent Cause: Design _____ Material _____ Personnel X Procedure X
Other _____, *Explain in Item 14*

9. Description of Unusual Occurrence
See Page 3.

10. Operating Conditions of the Facility at Time of Unusual Occurrence (if applicable)

A head driven electric pump was being used to dewater the construction contractor excavation. No employees were working in the excavation at the time of the unusual occurrence.

11. Immediate Evaluation

- A. It was initially estimated by Energy Systems environmental compliance personnel that a maximum of approximately 8000 gallons of unmonitored process waste water was pumped into the storm sewer system and subsequently released into White Oak Creek.
- B. A NPDES permit violation has occurred.
- C. The pumping of water from the excavation to the storm sewer was not reported to nor authorized by Energy Systems.
- D. Energy Systems personnel were on site at various times during the pumping operation, but did not question the source of the water or where it was being pumped to.
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12. Immediate and/or Temporary Corrective Action Taken and Results

- A. The excavation pumping operation effluent was diverted to the process sewer system.
- B. DOE-ORO notified at approximately 18:05 hours.

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13. Is Further Evaluation and/or Corrective Action Necessary? Yes _____ No X
If Yes: Before Further Operation?

By Whom? _____
When _____

14. Final Evaluation and/or Corrective Action

Final Evaluation:

- A. After consulting with the subcontractor and construction engineer, the estimate of the volume of water actually pumped from the excavation into the storm sewer was revised to approximately 1500 gallons.
- B. Sample results indicate the following:
PH: 7.7; Temp. 22.3 Deg. C.
Gross Alpha: Negative
Gross Beta/Gamma: Negative
- C. Design drawings P3E020647C036 and P3E020647C037 provided to the subcontractor identify the clay tile drain pipe as a six-inch vitrified pipe. (Continued on page 4)
Taken _____ Recommended _____ To be supplied _____

15. Programmatic Impact

See Page 5.

16. Impact Upon National Codes and Standards, Including RDT Standards

None

17. Similar Unusual Occurrence Reports [indicate report no.(s)]

N/A

18. Suggested Laboratory-wide Application of Corrective Action Taken for this Unusual Occurrence

N/A

19. Signatures:

Originator	<u>Shane Bias</u>	Date	<u>8/23/90</u>
Quality Dept.	<u>M. G. Woody</u>	Date	<u>8-23-90</u>
Approved by	<u>Shaker, Jr.</u>	Date	<u>8.23.90</u>
Approved by	<u>J. B. Morgan</u>	Date	<u>8-24-90</u>

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9. Description of Unusual Occurrence

On July 23, 1990, at approximately 2:00 p.m., a six-inch clay drain tile was struck by excavation equipment operated by a subcontractor. The drain tile sustained minimal damage with no immediate leakage into the excavation. A Martin Marietta Energy Systems, Inc. subcontracted health physics technician surveyed the exterior of the drain tile and the adjacent area for beta/gamma radiation. No detectable radiation was observed. The Energy Systems Construction Engineer was on site and was aware that the clay drain tile had been struck. Work was suspended in the excavation until the following day.

On July 24, 1990, at approximately 8:00 a.m., subcontractor workers observed that clear water was entering the excavation from the drain tile. The workers further observed that the opening in the clay drain tile had increased in size and there were large fluctuations in water flow rate. At this point, water removal by pumping was deemed necessary by subcontractor personnel.

Through the course of the project, the subcontractor had encountered several similar clay drain tiles containing storm water run-off. Energy Systems personnel had previously approved pumping clear rain water into storm drain catch basins. Based on the type of clay drain tile involved, and the appearance of the water from the tile, subcontractor personnel assumed that the water in the excavation was condensation from building air conditioning systems. The subcontractor reasoned that condensation run-off should be non-contaminated and for all intents and purposes the same as rain water. Therefore, at approximately 12:30 p.m., the subcontractor began pumping the water into a nearby storm drain catch basin. The Energy Systems subcontracted health physics technician continued to probe the water for beta/gamma radiation on a routine basis.

On July 25, 1990, at approximately 11:30 a.m., an Energy Systems waste operations employee was on site in regards to another portion of the project. This employee noticed the pumping operation and identified the ruptured clay tile drain pipe as a process waste line. An Energy Systems environmental compliance employee was also on site and initiated corrective action.



NOTE: Please use this form when there is insufficient space for providing complete information. Indicate the appropriate "Page No.," "Report No.," and "Report Date." When entering information on this form use the appropriate information item number(s) and title(s) as indicated on Report Form.

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11. Immediate Evaluation (Continued)

- E. The water had been routinely monitored for beta/gamma during the pumping operation, but did not question the source of the water or where it was being pumped to.

12. Immediate and/or Temporary Corrective Action Taken and Results (Continued)

- C. Contracted construction excavation operations at ORNL were temporarily suspended until a formal documented meeting was held with all current contractors requiring that all encountered lines and utilities be reported and all pumping operations receive prior approval from Energy Systems.
- D. Two water samples were taken from the excavation for analytical analyses.

14. Final Evaluation and/or Corrective Action (Continued)

No indication of contents was provided by drawings.

- D. Excavation/Penetration permit refers the subcontractor to drawings and specifications.
- E. The Energy Systems Construction Engineer had not received documented formal training with regard to actions to be taken when certain underground lines are damaged.
- F. Construction Contractor personnel had not received instructions with regard to actions to be taken when unanticipated underground lines, utilities, or materials are encountered or damaged.

Actions To Be Taken:

- A. Preconstruction meetings will specifically outline reporting responsibilities regarding encountering unanticipated lines and utilities. Also, subcontractor will be informed that no pumping operation is to occur without prior approval from Energy Systems.
- B. Contract specifications and drawings will be changed to identify the underground liquid low-level waste and/or process waste systems underground lines and utilities as a part of each project.
- C. A "troubleshooting" guide for ORNL assigned Construction Engineers will be developed and documented training will be conducted.
- D. ORNL construction contracts will be changed to require, as part of the mandatory safety orientation, that construction contractor personnel be instructed to contact their supervisor, the Energy Systems Construction Engineer, or the Laboratory Shift Superintendent whenever unanticipated underground lines, utilities, or materials are encountered or damaged. Further, contractor personnel will also be advised that no pumping

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14. Final Evaluation and/or Corrective Action (Continued)

operation is to occur without prior approval from Energy Systems.

15. Programmatic Impact

Based upon analytical results, the concentrations of anions, total organic halides, and additional metals do not exceed any water quality standards. In fact, the concentrations of these materials within the ruptured process waste line were less than the allowable limits for all effluents released into White Oak Creek. Therefore, it is highly unlikely that water from the clay tile drain pipe in this incident has an adverse effect upon the White Oak Creek surface water drainage system.

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OAK RIDGE NATIONAL LABORATORY
OPERATED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE U. S. DEPARTMENT OF ENERGY

ER024531



ER DMC Central
OAK RIDGE, TENNESSEE 37831-6198

September 4, 1990

Mr. James A. Reafsnyder, Deputy Assistant Manager
Energy Research and Development
Department of Energy, Oak Ridge Operations
Post Office Box 2008
Oak Ridge, Tennessee 37831-6269

Dear Mr. Reafsnyder:

Final Unusual Occurrence Report Relating to the Discharge of Unmonitored Process Waste Water into White Oak Creek

On July 25, 1990, it was discovered that unmonitored process waste was being released into a storm sewer system that drains into White Oak Creek.

Enclosed is the Final Unusual Occurrence Report (ORNL-90-35-ENGR-90-1) describing the incident and the responsive action. All corrective actions have been completed. Training will be conducted for the MK Ferguson personnel, the new DOE Prime Construction Contractor, commencing October 1990, to be completed by December 1990.

Sincerely,

Jerry H. Swanks, Acting Director
Environmental, Safety
and Health Compliance

JHS:dl

Enclosure

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